

1-14. (CANCELED)

15. (NEW) A device (1) for determination of air content, air separation behavior and surface area foam formation of oils, in particular related to transmission oils, with an air-oil mixer (2) and a differential pressure sensor (3), the device (1) comprising a conveyor system (4) is installed which transports the oils through pipe lines (5) of the air-oil mixer (2), a compressed air port (6) that provides for air in the pipe lines (5) of the air-oil mixer (2), a Venturi pipe (9) that is installed in one of the pipe lines (5), and the differential pressure sensor (3) through at least two separate drill tubes in the conveyor system of the oil (7, 8) to the Venturi pipe (9), which measures differential oil pressures.

16. (NEW) The device (1) according to claim 15, wherein the compressed air port (6) is controllable, and the mixer is installed for intensive turbulent mixing of the air with the oil in the pipe lines (5).

17. (NEW) The device (1) according to claim 15, wherein the pipe lines (5) further comprise at least one separator (7).

18. (NEW) The device (1) according to claim 17, wherein a diameter of the separator (15) is approximately 20 to 30 mm.

19. (NEW) The device (1) according to claim 15, wherein the air-oil mixer (2) partially manufactured of glass.

20. (NEW) The device (1) according to claim 15, wherein the air-oil mixer (2) is equipped with a receptacle (14) for surface foam.

21. (NEW) The device (1) according to claim 15, wherein the air-oil mixer (2) and the pipe lines connected to the Venturi pipe (9) and are arranged within a temperature-regulating container.

22. (NEW) The device (1) according to claim 20, wherein the temperature-regulating container has a circulating thermostat.

23. (NEW) The device (1) according to claim 15, wherein the device further comprises an A/D converter map and a calculator and the differential pressure sensor (3) is connected with the A/D converter map and the calculator.

24. (NEW) The device (1) according to claim 15, wherein the conveyor system designed as a gear pump.

25. (NEW) A method for the determining air content for variable volume flows with a device (1) in particular related to transmission oils, with an air-oil mixer (2) and

a differential pressure sensor (3), the device (1) comprising a conveyor system (4) is installed which transports the oils through pipe lines (5) of the air-oil mixer (2), a compressed air port (6) that provides for air in the pipe lines (5) of the air-oil mixer (2), a Venturi pipe (9) that is installed in one of the pipe lines (5), and the differential pressure sensor (3) through at least two separate drill tubes in the conveyor system of the oil (7, 8) to the Venturi pipe (9), which measures differential oil pressures, the method comprising the steps of;

- filling up of the oil being tested by means of the receptacle (14) in the air-oil mixer (2);

- switching on a water jet pump, so that the oil is sucked into hoses (12, 13) above a measuring cell of the differential pressure sensor (3);

- prevention of back flow of the oil into the hoses (12, 13) above the measuring cell;

- switching on the conveyor system (4);

- filling up of more of the oil being tested until the pipe lines (5) of the air-oil mixer (2) are full without bubbles developing;

- adjustment of an air supply;

- setting of the conveyor system (4) at maximum flow; and

- transfer of the oil being tested and measurement of all regulating volume flows at respective constant volume flows.

26. (NEW) A method for the determining air separation behavior and surface foam with a device (1) in particular related to transmission oils, with an air-oil mixer (2) and a differential pressure sensor (3), the device (1) comprising a conveyor system (4) is installed which transports the oils through pipe lines (5) of the air-oil mixer (2), a compressed air port (6) that provides for air in the pipe lines (5) of the air-oil mixer (2), a Venturi pipe (9) that is installed in one of the pipe lines (5), and the differential pressure sensor (3) through at least two separate drill tubes in the conveyor system of the oil (7, 8) to the Venturi pipe (9), which measures differential oil pressures, the method comprising the steps of;

- filling up of the oil being tested through a filler funnel (14) in the air-oil mixer (2);

switching on a water jet pump so that oil is sucked into hoses (12, 13) above a measuring cell of the differential pressure sensor (3);

prevention of back flow of the oil into the hoses (12, 13) above the measuring cell;

switching on the conveyor system (4);

filling up of more of the oil being tested, until the pipe lines (5) of the air-oil mixer (2) are full without bubbles developing;

setting of the conveyor system (4) at a specific flow; and

measurement of the differential pressures, stopping the air supply, measurement of the surface foam in ml, time measurement and measurement of the respective differential pressures at regular intervals.

27. (NEW) A method for the determining air separation behavior and surface foam with a device (1) in particular related to transmission oils, with an air-oil mixer (2) and a differential pressure sensor (3), the device (1) comprising a conveyor system (4) is installed which transports the oils through pipe lines (5) of the air-oil mixer (2), a compressed air port (6) that provides for air in the pipe lines (5) of the air-oil mixer (2), a Venturi pipe (9) that is installed in one of the pipe lines (5), and the differential pressure sensor (3) through at least two separate drill tubes in the conveyor system of the oil (7, 8) to the Venturi pipe (9), which measures differential oil pressures, the method comprising the steps of;

filling up of the oil being tested by the receptacle (14) in the air-oil mixer (2),

switching on a water jet pump so that the oil is sucked into hoses (12, 13) above a measuring cell of the differential pressure sensor (3);

prevention of back flow of the oil into the hoses (12, 13) above the measuring cell;

switching on the conveyor system (4);

filling up of more the oil being tested, until the pipe lines (5) of the air-oil mixer (2) are full without bubbles developing;

adjusting an air supply;

setting of the conveyor system (4) at a specific flow; and

measuring differential pressures, stopping the air supply, measuring the surface foam in milliliter, a time measurement and a measurement of the differential pressures at regular intervals.

28. (NEW) The procedure according to claim 27, wherein setting a temperature of the oil being tested by means of a thermostat in a container.